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**GROUP 3600**

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/717,672  
Filing Date: November 21, 2003  
Appellant(s): CORJON ET AL.

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Ed Tracy  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 1/28/2007 (and the supplement to the appeal brief faxed to the examiner on 5/39/2007) appealing from the Office action mailed 1/28/2007.

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**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The following are the related appeals, interferences, and judicial proceedings known to the examiner, which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

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**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct..

**(6) Grounds of Rejection to be reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

3936013

Yuan

2-1976

6042059

Bilanin et al

3-2000.

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

**Claims 1, 2, 8-11, 14-20, 23-30, 33 and 36 are rejected under 35 U.S.C. 102(b) as anticipated by Yuan (3,936,013) or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yuan in view of ordinary skill in the art.**

Re – Claim 1, 8, 9, 10, 14, 15, 16, Yaun teaches an aircraft having two fixed wings (11) on each side of the fuselage (12). As the aircraft moves through the air, the wings cause the air to move such that they form vortices behind the aircraft. Yaun then goes on to disclose a tube (21) for blowing a jet of fluid through an orifice 22. The extended tube is attached to the wing 11 and at least a portion thereof extends therein (see Figure 2). Fluid from the fluid source enters a conduit 23 and ejects from an orifice opening 22.

Yuan teaches that the location of the extended tube can designed according to the configuration of the wing planform which would allow the vortex control system to operate most efficiently for a given configuration of the wings. (see Col. 3, lines 63+ - Col. 4, lines 3.) Yaun further teaches that the extending tube may be attached to the wing tip at a location anywhere between the leading and trailing edges (see Col. 4, lines 16-18).

It is, therefore, the examiners position that Yuan teaches that the tube can be located at almost any position that results in increased aerodynamic efficiency; and if Yuan does not

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specifically teach this, it would be obvious in light of the teachings of Yuan to locate the tube at almost any position that results in increased aerodynamic efficiency since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse 86 USPQ 70.

Regarding Claims 2, 11: the jet device is either disclosed as being next to the inherent and necessarily aircraft flaps of Yuan or would have been obvious to locate adjacent thereto for the reasons of increasing vortex destruction efficiencies.

The examiner asserts that the wavelengths generated by Yuan's jets are exciting an instability mode of the eddies such that they accelerate the destruction of the trailing vortices.

In the alternative, should Yuan not necessarily teach such a step, or "structural limitation", such would be obvious to one having ordinary skill in the art (ordinary skill in the art is evidenced by both Ortega and Bilanin et al teachings) to design the jet such that it is configured for generating a wavelength capable of exciting at least one instability mode of a co-rotating eddy to accelerate the destruction of the vortex for the purpose of reducing the kinetic energy (turbulence) of a vortex.

Re – Claims 16-20, 24-30, 33 and 36: These claims do not limit the aircraft structure. (see paragraphs 7-12 above). Yuan teaches the claimed capabilities outlined in these claims.

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Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim.” Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, “[i]nclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims.” In re Young, 75 F.2d 996, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). In In re Casey, 370 F.2d 576, 152 USPQ 235 (CCPA 1967) teaches that: “the manner or method in which such machine is to be utilized is not germane to the issue of patentability of the machine itself.” Therefore the claimed expression relating to the aircraft to the airflow around thereof during operation are of no significance in determining patentability of the apparatus claim. The inclusion of fluid and airflow recitations does not impart patentability to the claims. The manner in which the apparatus is supposed to be utilized is not germane to the issues of patentability of the aircraft itself.

While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. Apparatus claims cover what a device is, not what a device does. A claim containing a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus if the prior apparatus teaches all the structural limitations of the claims. In re Schreiber, 128 F.3d 1473, 44 USPQ2d 1429, 1431-2 (Fed. Cir. 1997); Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990); Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

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**Alternatively Claims 33 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuan as applied to claims 1 and 10 above, and further in view of ordinary skill in the art.** The speed at which the fluid is capable of being ejected is nothing more than a result effective variable. (variable = speed; result = vortex destruction). It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boeson, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980). It would have been obvious to one having ordinary skill in the art, at the time the invention was made to eject the fluid at a speed equal to or great than the speed of the aircraft for the purpose of increasing aircraft efficiencies (or landing field efficiencies).

**(10) Response to Argument**

Applicant has argued that the examiner “has given no patentable weight” to the claim feature “the periodic perturbation having a predetermined wavelength that excites at least one internal instability mode of a core of the first eddy.” The examiner does not agree with this assertion. The examiner did not ignore the above-identified limitation.

Instead the examiner asserted that the phrase “to excite...eddy” is a desired outcome. The limitation “to excite” is not an individual method step. The limitation “to excite” is limiting only in the sense that the prior art must be capable of exciting the at least one instability mode to read on the limitation. It is the examiner’s position that Yuan teaches this capability.

Applicant has further argued that Yuan does not teach or suggest generating a perturbation having *any* wavelength. The examiner disagrees with this assertion. The examiner asserts that where Yuan is ejecting a fluid, this ejection will necessarily have a wavelength. Yuan teaches “intermittently blowing fluid” (see Col. 2, lines 45-50) and –“varying the intensity of fluid flow” (see Col. 3, lines 50-55). Further Yuan teaches, “the angle of the et can be adjusted during flight” (see Col. 4, lines 47-50). The examiner asserts that at the very least Yuan is teaching a longitudinal wave that “pulses” based on the intensity of the fluid jet.

Applicant has further argued that Yuan does not teach a “perturbation”. The word “perturbation” generally means: A small change in a physical system. The examiner asserts that Yuan teaches a “perturbation” by emitting a fluid flow into the Vortex. See for example Col. 3,

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lines 50-55 where Yuan states “The spacing and intensity of the blowing jets are so designed as to form a substantially jet sheet acting as a jet knife”.

The examiner asserts that Yuan’s disclosed apparatus is extremely similar to appellant’s disclosed embodiments (see Figure 3 to appellant). Yuan discloses a device for vortex control, like Appellant’s device. In Yuan, a tube (21) extends from an aircraft wing and blows jet fluid. Yuan states “Thus, the present invention uses the jet flow system to abate the circularly flow created near the wing tip and to alleviate the wing-tip vortices” (Col. 3, lines 59-61). Appellant’s device in the embodiment of Figure 3 is very similar to the device disclosed in Yuan. Appellant provides means 14 of an ordinary type for admitting jet fluid to create the perturbations to break up the vortices.” The examiner asserts the disclosed apparatus and the manner in which they are used are very similar.

The applicant has argued that claim 10 was improperly rejected because Yuan does not teach the “means plus function” limitations. The examiner disagrees. Applicant has defined the “means for generating” as element #11 and element #13 (see Figure 2) where elements #11 and #13 are a cylinder of circular, elliptical or other cross section. Element #13 can also be a flat plate with a high angle of incidence, inclined at 45.degree.

The examiner asserts that Yuan teaches that the jet fluid device is used on both the right and left wings. The jet fluid device is an element that projects from the wing of the aircraft and has a cross section that appears substantially circular or elliptical (see Figure 5 to Yuan).



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**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Stephen A. Holzen/

Patent Examiner, AU 3644

6/4/2007

Conferees:

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